ORDER NO. ARD-7712131C

Service Manual

Portable Cassette

RQ-332S

Mini Cassette Recorder with Built-in Microphone

RQ-332 MECHANISM SERIES

Specifications (Catalog specifications for sales)

Power requirement:	Battery; 6 V (four- UM-3, R6 size dry batteries) AC; with AC adaptor/charger RP-667 Car/boat battery; with optional car/boat adaptor RP-917 Rechargeable battery; with optional rechargeable battery pack RP-9214
Motor:	Electrical governor motor
Power output:	550 mW···RMS (max.)
Frequency range:	80 ~ 10,000 Hz
Recording system:	AC bias
Operation:	Push button one-touch recording with Auto-Stop mechanism
Tape speed:	4.8 cm/s, (1-7/8 ips.)
Program time:	1 hour with C-60 cassette tape
Fast forward time:	Approx. 110 seconds with C-60 cassette tape
Rewind time:	Approx. 90 seconds with C-60 cassette tape
Track system:	2-track monaural recording and playback
Input:	MIC; sensitivity 0.25 mV/applicable microphone impedance 200Ω ~ 600Ω (recommended microphone WM-2213N) DC IN; 6 V
Output:	MONITOR; 8Ω REMOTE; for start and stop at hand
Speaker:	6.5 cm (2-1/2") PM dynamic speaker
Dimensions:	17.0 cm (W) × 10.2 cm (H) × 4.9 cm (D) [6-3/4" (W) × 4" (H) × 2" (D)]
Weight:	700 g (1-1/2 lbs.)

Specifications are subject to change without notice.

National Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

LOCATION OF CONTROLS AND COMPONENTS

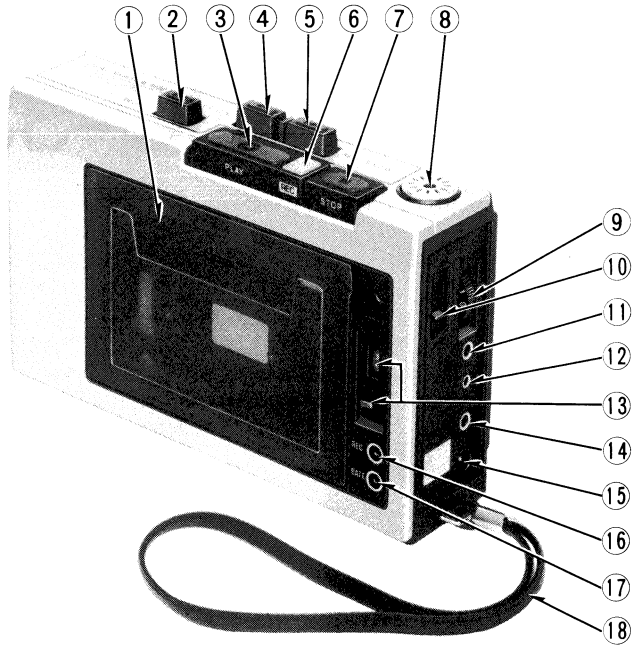


Fig. 1

① Cassette compartment cover
② Pause/eject button
③ Playback button
④ Fast forward/cue button
⑤ Rewind/review button
⑥ Record button
⑦ Stop button
⑧ Built-in microphone
⑨ Volume control
⑩ Sensitivity switch for built-in microphone
⑪ External microphone jack
⑫ Remote control jack
⑬ Tape counter and reset button
⑭ Monitor jack
⑮ External power adaptor jack
⑯ Recording indication lamp
⑰ Battery-check lamp
⑱ Carring belt

DISASSEMBLY INSTRUCTIONS

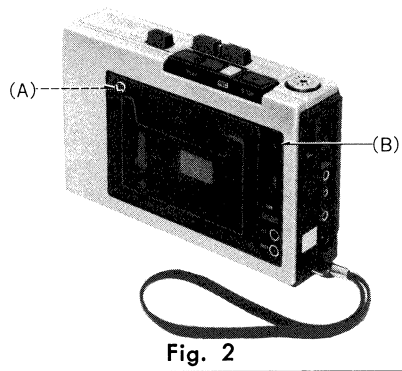


Fig. 2

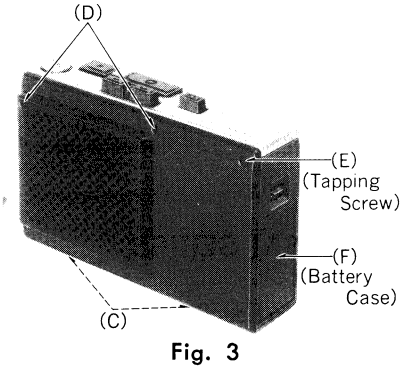


Fig. 3

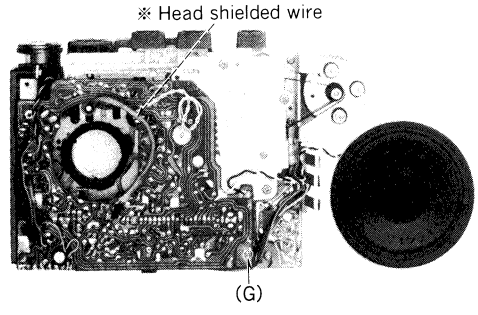


Fig. 4

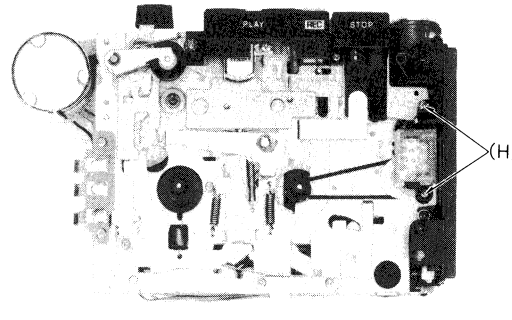


Fig. 5

Procedure	To remove ——.	Remove ——.	Pcs.	Shown in fig. ——.
1	Main case assembly	(A), (B), (C), (E), (F)	(1), (1), (2), (1), (1)	2, 3
2	Bottom case assembly	(D)	(2)	3
3	P.C.B.	(G), (H)	(1), (2)	4, 5

※ Note that the head shielded wire must be in the condition shown in fig. 4 when mounting P.C.B.

ADJUSTMENTS

MEASUREMENT AND ADJUSTMENT METHODS

A. PRESSURE ROLLER ADJUSTMENT (See fig. 6)

1. Set into playback mode.
2. Connect the tension gauge to pressure roller lever and pull it in the direction of the arrow as shown in fig. 6.
3. Measure the tension at the moment when the pressure roller moves away from the capstan.
   Standard pressure: 400±50 gr
4. If the pressure is out of tolerance, bend part (a) of the pressure roller spring in either direction shown by the arrow until the correct pressure is attained.

B. HEAD AZIMUTH ADJUSTMENT (See fig. 7)

1. Playback the test tape C-AA.
2. Adjust the screw for maximum output at monitor jack.

C. TAPE SPEED ADJUSTMENT (See fig. 8)

1. Playback the test tape C-WAT and supply output signal to frequency counter.
2. Read the value on frequency counter.
   Standard value: 3,000 Hz ±2%
3. If the value is out of tolerance, adjust semi-fixed variable resistor (shown in electrical parts location) on motor control circuit board and take aim at 3,000 Hz ±1% in order to secure accuracy.

D. RECORDING BIAS CURRENT ADJUSTMENT (See fig. 9)

1. Connect VTVM to both ends of R5 (10Ω).
2. Set into record mode and read voltage on VTVM.
   Standard voltage: 7.5±0.5 mV
3. If the voltage is out of tolerance, make adjustment by turning VR2 (refer to page 7).

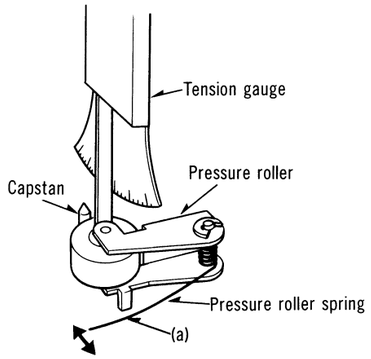


Fig. 6

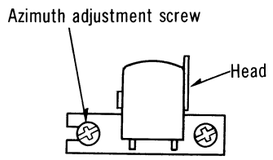


Fig. 7

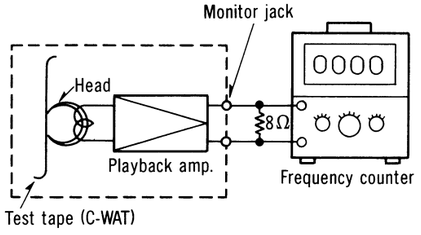


Fig. 8

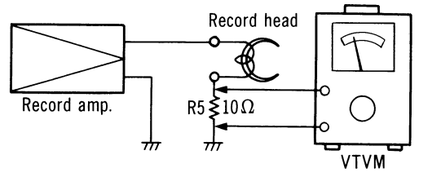


Fig. 9

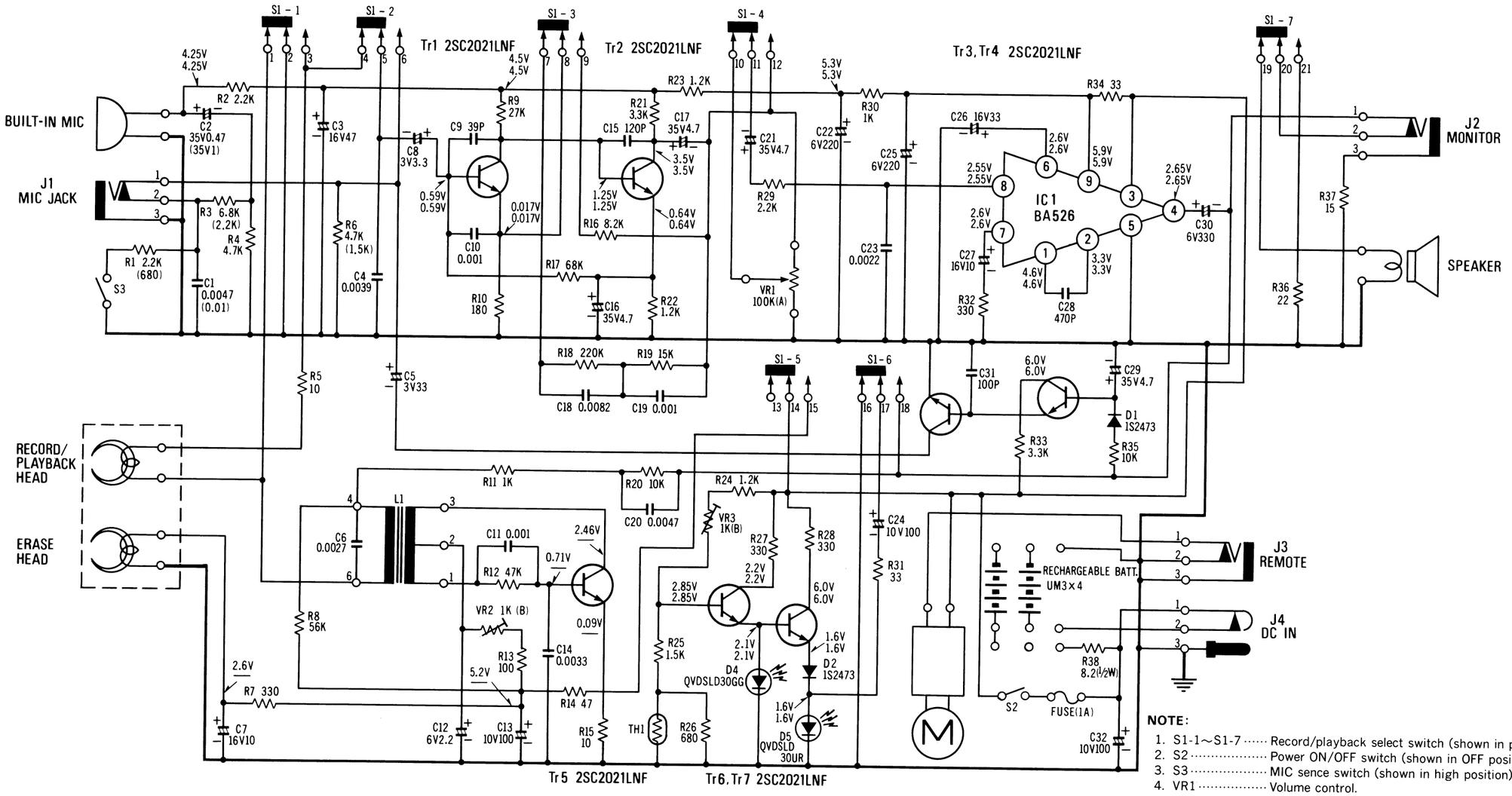
E. BATTERY-CHECK LAMP ADJUSTMENT

1. Set into playback mode.
2. Supply DC power through DC-IN jack.
3. When the power source voltage is 4.4 V, battery-check lamp won't illuminate, and when it is 4.5 V it will.
4. If not within standard, make adjustment by turning VR3 (refer to page 7).

F. OTHER SPECIFICATIONS FOR REFERENCE (NON ADJUSTABLE)

ITEM	VALUE	REMARKS
Wow and flutter	Less than 0.45% (RMS)	Use 3 kHz test tape (C-WAT).
Takeup torque	55±15 gr	Use cassette torque meter (SRK-CT).
Standard recording input level	1 kHz, −72±4 dB	To obtain 55μA of recording current through the recording head, stop the bias oscillation by unsoldering point Ⓐ shown in printed circuit board view on page 4.
Bias oscillation frequency	43±5 kHz	———
Erase current	7.6±1 mA	———
Overall frequency response	150 Hz: −4±5 dB 1 kHz: 0 dB 6 kHz: −4±6 dB	Recording input level: −82 dB Output reading: at monitor out with 8Ω dummy load

SCHEMATIC DIAGRAM MODEL RQ-332S



TERMINATIONS (BOTTOM VIEW)

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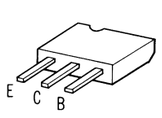

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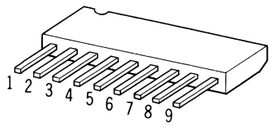
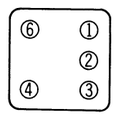


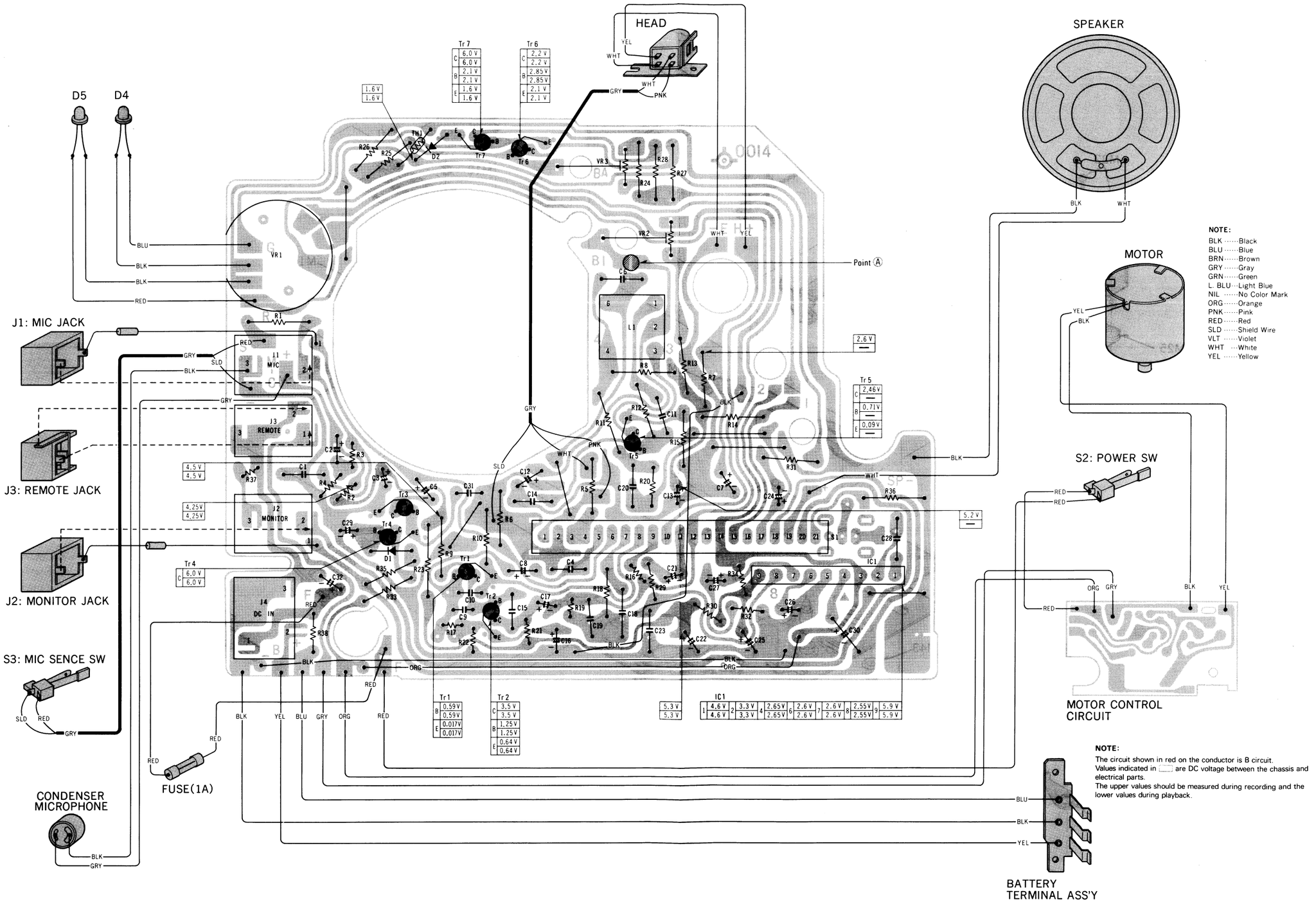
L1



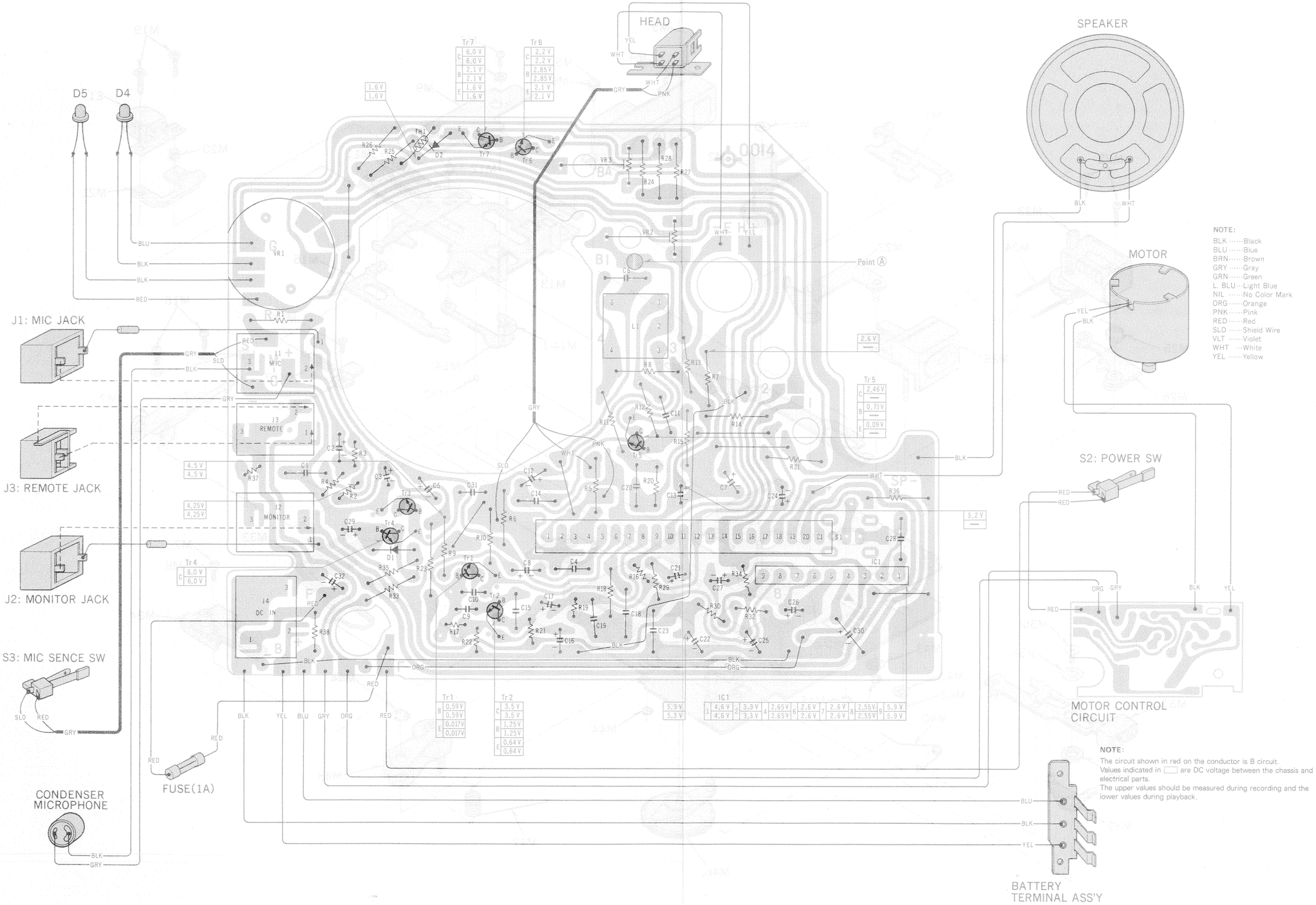
NOTE:

1. S1-1～S1-7 ..... Record/playback select switch (shown in playback position).
2. S2 ..... Power ON/OFF switch (shown in OFF position).
3. S3 ..... MIC sence switch (shown in high position).
4. VR1 ..... Volume control.
5. VR2 ..... Bias current adjustment VR.
6. VR3 ..... Battery-check lamp adjustment VR.
7. Resistor values are in ohms (Ω), 1/4 watt unless specified otherwise.
   K = 1,000Ω.
8. Capacitor values are in microfarads (μF) unless specified otherwise.
   P = Pico-farads.
9. All voltage values shown in circuitry are under no signal condition with volume control at minimum position.
   For measurement, use VTVM.
   The upper values should be measured during recording and the lower values during playback.
10. The values indicated in ( ) are adopted on the model for Europe except United Kingdom. And in the replacement parts list, part numbers of resistors and capacitors without ( ) are only informed.

WIRING CONNECTION DIAGRAM MODEL RQ-332S



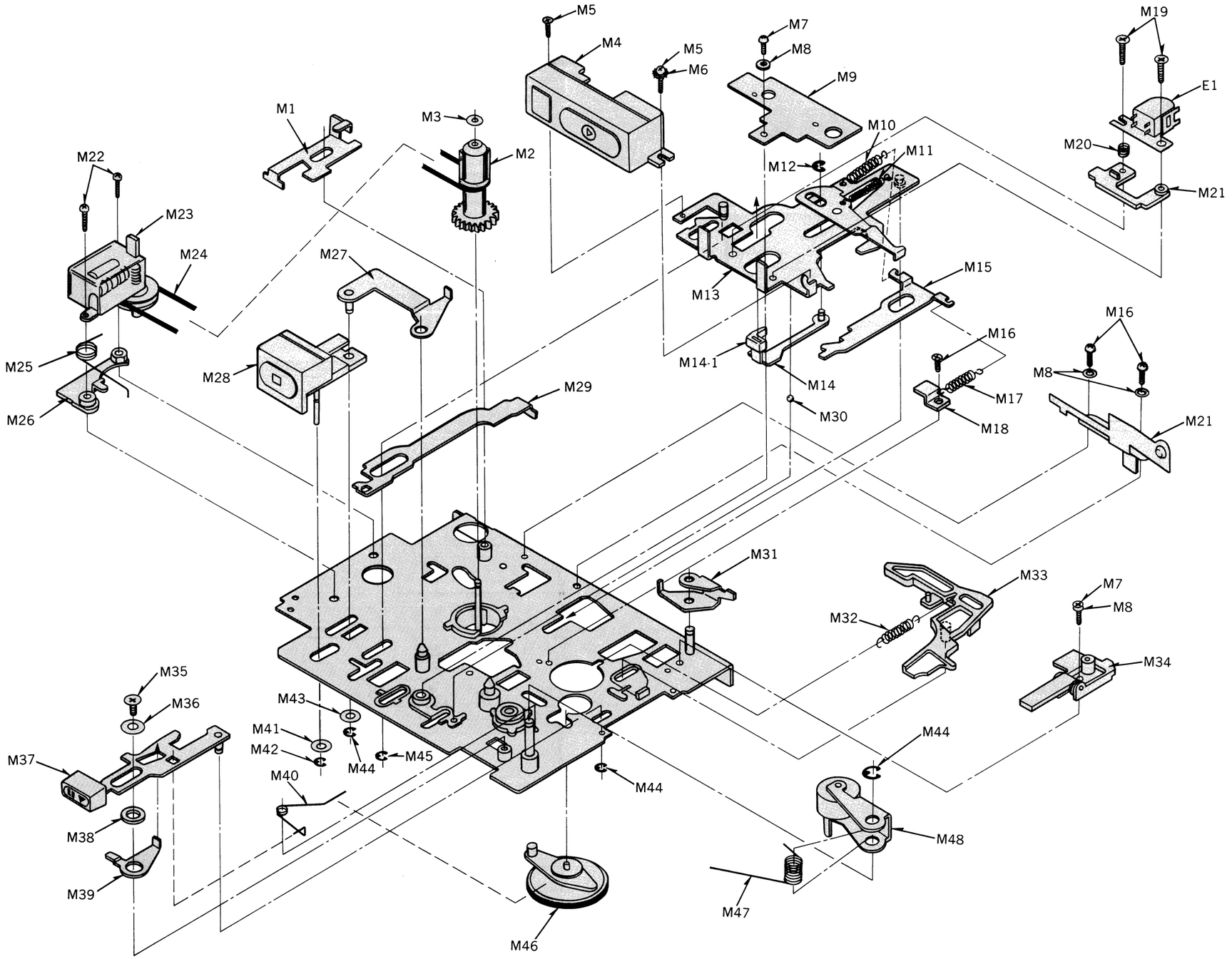
WIRING CONNECTION DIAGRAM MODEL RQ-332S

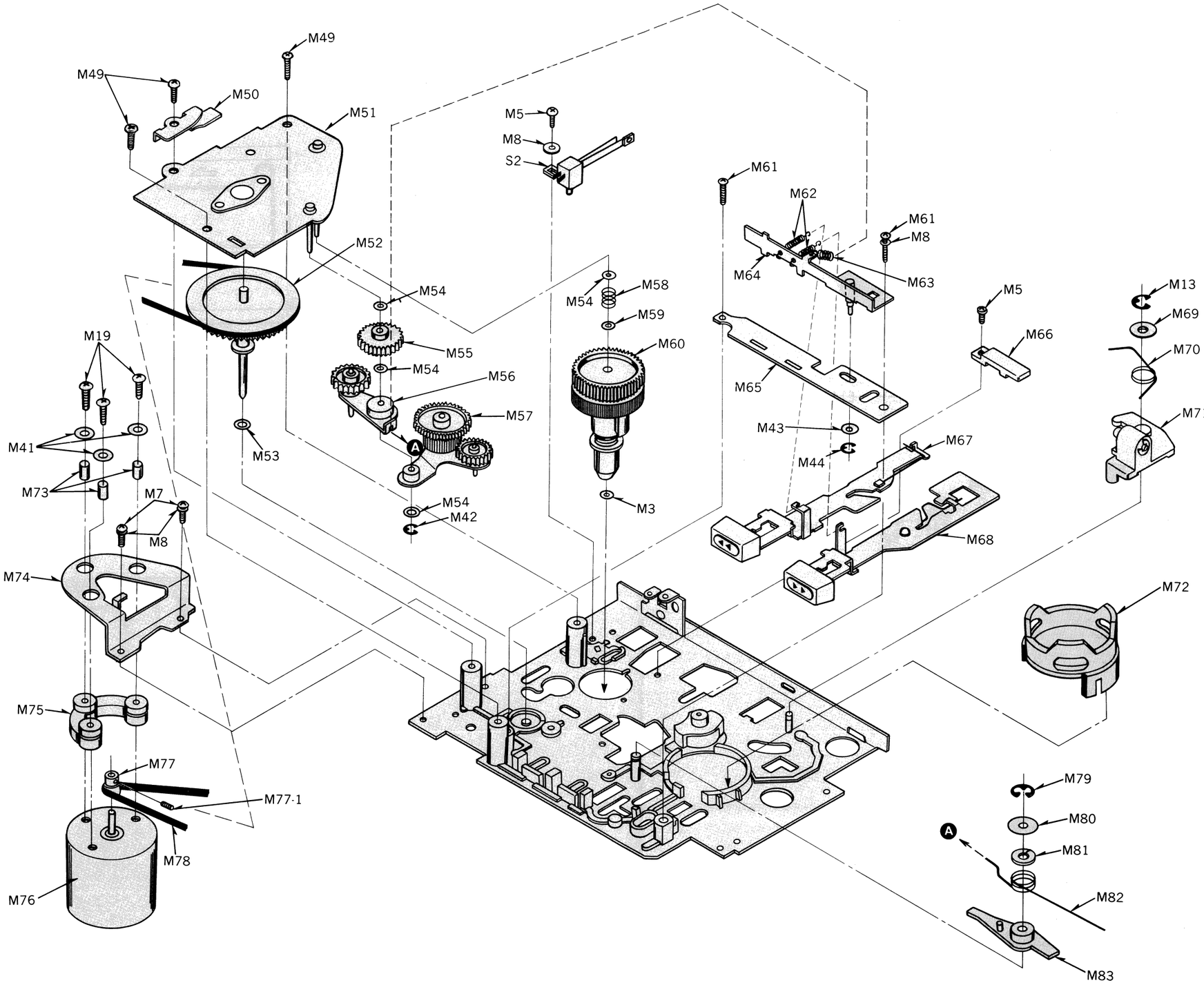


NOTE:

The circuit shown in red on the conductor is B circuit.
Values indicated in ▭ are DC voltage between the chassis and electrical parts.
The upper values should be measured during recording and the lower values during playback.

EXPLODED VIEWS




M49
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M7
M8
M74
M75
M77
M77-1
M78
M76
M5
M8
S2
M54
M58
M59
M60
M54
M42
M3
M61
M62
M61
M8
M64
M63
M65
M5
M66
M43
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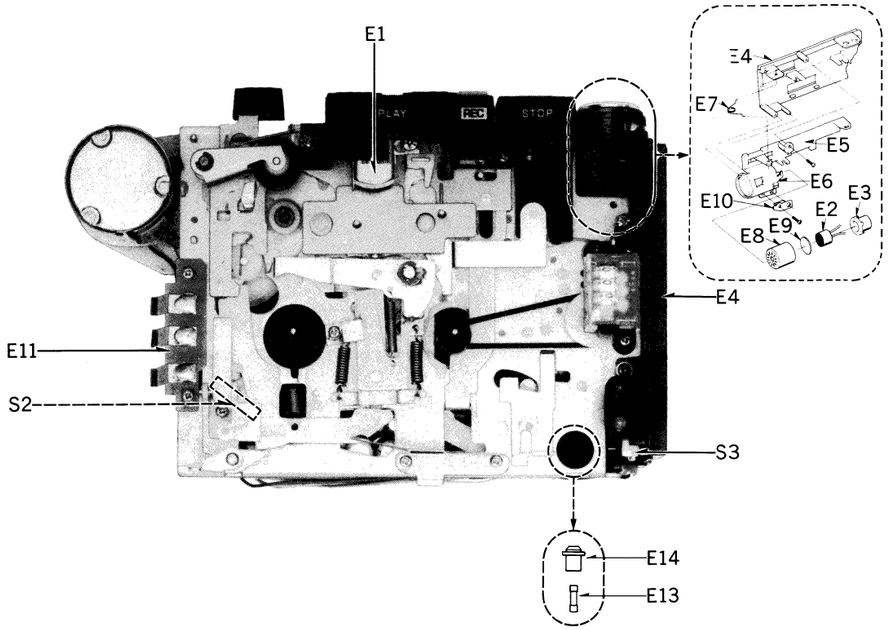
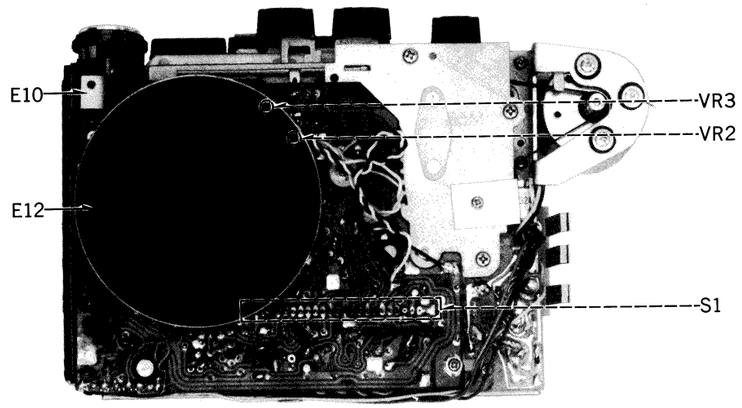
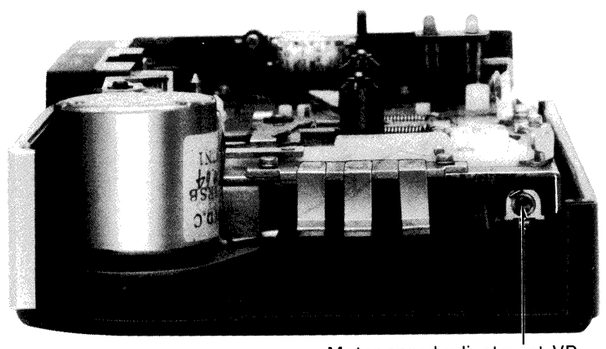
M83

ELECTRICAL PARTS LOCATION

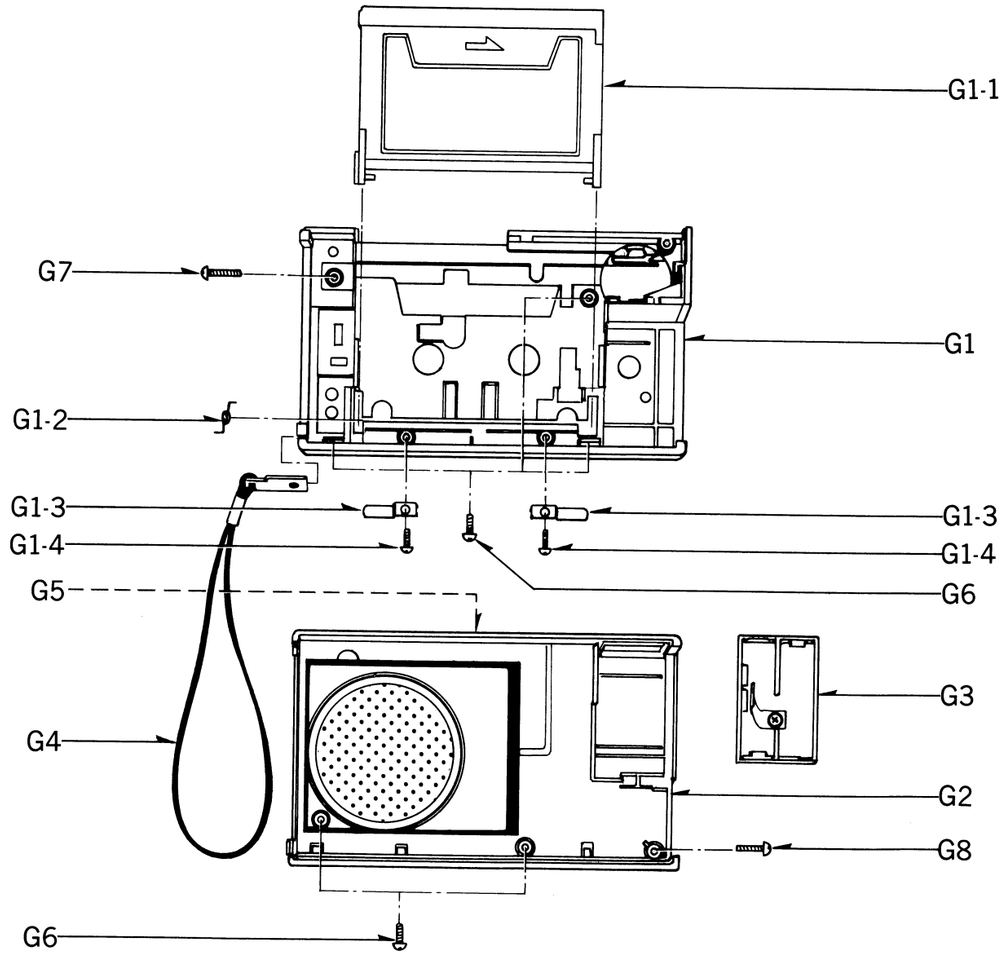






Motor speed adjustment VR.

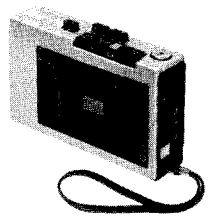
CABINET PARTS



Printed in Japan.

REPLACEMENT PARTS LIST

MODEL RQ-332S (National Panasonic)



RQ-332S

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks
		MECHANICAL PARTS		
M1	QMR1649	Erase Safety Metal	1	
M2	QXD0086	Supply Reel Table Assembly	1	
M3	QBW2008	Snap Washer	2	
M4	QXB0512	Record/Playback Button Assembly	1	
M5	XSN2+4	Screw ⊕2×4	3	
M6	XWC2BAW	Lock Washer	1	
M7	XSN2+6	Screw ⊕2×6	4	
M8	XWA2B	Spring Washer	7	
M9	QBP1783	Head Base Plate Spring	1	
M10	QBT1841	Head Base Spring-A	1	
M11	QBTA0011	Auto-Stop Lever Spring	1	
M12	XUC23FT	Stop Ring 2.3φ	2	
M13	QXK1976	Head Base Plate Assembly	1	
M14	QXHA0021	Detecting Rod Assembly	1	
M14-1	QBJA0051	Detecting Piece	1	
M15	QML3232	Head Base Lock Plate	1	
M16	XSN2+3	Screw ⊕2×3	3	
M17	QBT1842	Head Base Spring-B	1	
M18	QMH2025	Head Base Plate Retainer	1	
M19	XSN2+7	Screw ⊕2×7	5	
M20	QBCA0008	Head Spring	1	
M21	QBP1782	Cassette Spring	1	
M22	XSN2+8	Screw ⊕2×8	2	
M23	QDC0063	Counter	1	
M24	QDB0243	Counter Belt	1	
M25	QBN1566	Stop Button Spring	1	
M26	QMZ1207	Counter Table	1	
M27	QXL1143	Stop Lever Assembly	1	
M28	QXB0511	Stop Button Assembly	1	
M29	QMR1647	Record Rod	1	
M30	QDK1017	Steel Ball	1	
M31	QMLA0059	Cassette Lid Pushing Lever	1	
M32	QBT1840	Eject Lever Spring	1	
M33	QML3241	Eject Lever	1	
M34	QXL1141	Cassette-up Lever Assembly	1	
M35	XSS26+6	Screw ⊕2.6×6	1	
M36	XWE3E	Washer	1	
M37	QXR0348	Pause Rod Assembly	1	
M38	XWE5F10	Washer	1	
M39	QML3232	Pause Lever	1	
M40	QBN1564	Takeup Idler Spring	1	
M41	XWE2D7	Washer	4	
M42	XUC15FT	Stop Ring 1.5φ	2	
M43	QBW2016	Washer	2	
M44	XUC2FT	Stop Ring 2φ	4	
M45	XUC25FT	Stop Ring 2.5φ	1	
M46	QXL1140	Idler Lever Assembly	1	
M47	QBN1563	Pressure Roller Spring	1	
M48	QXL1138	Pressure Roller Lever Assembly	1	
M49	XTN26+8B	Tapping Screw ⊕2.6×8	3	
M50	QMA3325	Belt Holder	1	
M51	QXK1976	Lower Base Plate	1	
M52	QXF0133	Flywheel Assembly	1	
M53	QBW2015	Washer	1	
M54	QBW2012	〃	4	
M55	QDG1126	Gear-3	1	
M56	QXL1146	Intermidiate Lever-B Assembly	1	
M57	QXL1144	Intermidiate Lever-A Assembly	1	
M58	QBCT0010	Back Tension Spring	1	
M59	QWQT0005	Washer	1	
M60	QXD0085	Takeup Reel Table Assembly	1	

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks
M61	XSN2+10	Screw ⊕2×10	2	
M62	QBT1389	Fast Forward Rod Spring	2	
M63	QBT1698	Erase Lever-B Spring	1	
M64	QXA0646	Lock Plate Assembly	1	
M65	QMF1950	Rod Retainer Plate	1	
M66	QGG0106	Fast Forward Rod Guide	1	
M67	QXR0347	Fast Forward Rod Assembly	1	
M68	QXR0346	Rewind Rod Assembly	1	
M69	QBK7124	Washer	1	
M70	QBN1568	Record Lever Spring	1	
M71	QXL1142	Record Lever Assembly	1	
M72	QBG1613	Speaker Cushion	1	
M73	QMC0083	Motor Collor	3	
M74	QMH2026	Motor Holder	1	
M75	QBG1610	Motor Rubber	1	
M76	MDE5H6RSB	Motor	1	
M77	QXP0658	Motor Pulley Assembly	1	
M77-1	XXA2D2FR	Hexagon Screw	1	
M78	QDB0242	Flywheel Belt	1	
M79	XUC3FT	Stop Ring 3φ	1	
M80	QBK7007	Washer	1	
M81	QBP1135	Spring Washer	1	
M82	QBN1565	Intermidiate Lever Spring	1	
M83	QML3238	Rewind Lever	1	
		RESISTORS		
R1, 2	ERD25TJ222	Carbon Resistor 2.2KΩ 1/4W	2	SD SUPPLY
R3	ERD25TJ682	〃 6.8KΩ 1/4W	1	〃
R4	ERD25TJ472	〃 4.7KΩ 1/4W	1	〃
R5	ERD25TJ100	〃 10Ω 1/4W	1	〃
R6	ERD25TJ472	〃 4.7KΩ 1/4W	1	〃
R7	ERD25TJ331	〃 330Ω 1/4W	1	〃
R8	ERD25TJ563	〃 56KΩ 1/4W	1	〃
R9	ERD25TJ273	〃 27KΩ 1/4W	1	〃
R10	ERD25TJ181	〃 180Ω 1/4W	1	〃

RQ-332S

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks
R11	ERD25TJ102	Carbon Resistor 1KΩ 1/4W	1	SD SUPPLY
R12	ERD25TJ473	〃 47KΩ 1/4W	1	〃
R13	ERD25TJ101	〃 100Ω 1/4W	1	〃
R14	ERD25TJ470	〃 47Ω 1/4W	1	〃
R15	ERD25TJ100	〃 10Ω 1/4W	1	〃
R16	ERD25TJ822	〃 8.2KΩ 1/4W	1	〃
R17	ERD25TJ683	〃 68KΩ 1/4W	1	〃
R18	ERD25TJ224	〃 220KΩ 1/4W	1	〃
R19	ERD25TJ153	〃 15KΩ 1/4W	1	〃
R20	ERD25TJ103	〃 10KΩ 1/4W	1	〃
R21	ERD25TJ332	〃 3.3KΩ 1/4W	1	〃
R22, 23, 24	ERD25TJ122	〃 1.2KΩ 1/4W	3	〃
R25	ERD25TJ152	〃 1.5KΩ 1/4W	1	〃
R26	ERD25TJ681	〃 680Ω 1/4W	1	〃
R27, 28	ERD25TJ331	〃 330Ω 1/4W	2	〃
R29	ERD25TJ222	〃 2.2KΩ 1/4W	1	〃
R30	ERD25TJ102	〃 1KΩ 1/4W	1	〃
R31	ERD25TJ330	〃 33Ω 1/4W	1	〃
R32	ERD25TJ331	〃 330Ω 1/4W	1	〃
R33	ERD25TJ332	〃 3.3KΩ 1/4W	1	〃
R34	ERD25TJ330	〃 33Ω 1/4W	1	〃
R35	ERD25TJ103	〃 10KΩ 1/4W	1	〃
R36	ERD25TJ220	〃 22Ω 1/4W	1	〃
R37	ERD25TJ150	〃 15Ω 1/4W	1	〃
R38	ERD50TJ8R2	〃 8.2Ω 1/2W	1	〃
		VARIABLE RESISTORS		
VR1	EVJA2AT12A14	Variable Resistor 100KΩ (A)	1	
VR2, 3	EVNK4AA00B13	Semi-fixed Variable Resistor 1KΩ (B)	2	
		CAPACITORS		
C1	ECQM05472KZ	Mylar Capacitor 0.0047μF	1	
C2	ECSZ35EFR47Q	Electrolytic Capacitor 0.47μF	1	
C3	ECEA16V47	〃 47μF	1	SD SUPPLY
C4	ECQM05392KZ	Mylar Capacitor 0.0039μF	1	

Ref. No.	Part No.	Part Name & Description		Pcs/ Set	Remarks
C5	ECSZ3EF33Q	Electrolytic Capacitor	33μF	1	
C6	ECQM05272KZ	Mylar Capacitor	0.0027μF	1	
C7	ECEA16V10	Electrolytic Capacitor	10μF	1	SD SUPPLY
C8	ECSZ3EF3R3Q	〃	3.3μF	1	
C9	QCKD05390P	Ceramic Capacitor	39pF	1	
C10, 11	QCKD05102PJ	〃	0.001μF	2	
C12	ECSZ6EF2R2Q	Electrolytic Capacitor	2.2μF	1	
C13	ECEA10V100	〃	100μF	1	SD SUPPLY
C14	ECQM05332KZ	Mylar Capacitor	0.0033μF	1	
C15	QCKD05121P	Ceramic Capacitor	120pF	1	
C16, 17	ECEA35V4R7	Electrolytic Capacitor	4.7μF	2	SD SUPPLY
C18	ECQM05822KZ	Mylar Capacitor	0.0082μF	1	
C19	ECQM05102KZ	〃	0.001μF	1	
C20	ECQM05103KZ	〃	0.0047μF	1	
C21	ECEA35V4R7	Electrolytic Capacitor	4.7μF	1	SD SUPPLY
C22	ECEA6V220	〃	220μF	1	〃
C23	ECQM05222KZ	Mylar Capacitor	0.0022μF	1	
C24	ECEA10V100	Electrolytic Capacitor	100μF	1	SD SUPPLY
C25	ECEA6V220	〃	220μF	1	〃
C26	ECEA16V33	〃	33μF	1	〃
C27	ECEA35V4R7	〃	4.7μF	1	〃
C28	QCKD05471P	Ceramic Capacitor	470pF	1	
C29	ECEA35V4R7	Electrolytic Capacitor	4.7μF	1	SD SUPPLY
C30	ECEA6V330	〃	330μF	1	〃
C31	QCKD05101P	Ceramic Capacitor	100pF	1	
C32	ECEA10V100	Electrolytic Capacitor	100μF	1	SD SUPPLY
		TRANSISTORS			
Tr1, 2, 3, 4, 5, 6, 7					
	2SC2021LNF	Transistor		7	
		INTEGRATED CIRCUIT			
IC1	BA526	Integrated Circuit		1	

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Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks
		DIODES		
D1, 2	1S2473	Diode	2	
D4	QVDSLD30GG	Luminous Diode (Green)	1	
D5	QVDSLD30UR	Luminous Diode (Red)	1	
		COIL		
L1	QLB0179	Oscillation Coil	1	
		THERMISTOR		
TH1	ERTD2FHL102S	Thermistor	1	
		SWITCHES		
S1	QSS7202	Slide Switch (Record/Playback)	1	
S2	QSB0195	Leaf Switch (Power ON/OFF)	1	
S3	QSB0195	Leaf Switch (MIC Sence)	1	
		ELECTRICAL PARTS		
E1	WY036AZ	Record/Playback/Erase Head	1	
E2	WM034X	Built-in Microphone	1	
E3	QBGA1604	Microphone Cover	1	
E4	QJAA0006	Jack Board	1	
E5	QKJA0019	Microphone Zoom	1	
E6	QKJA0020	Microphone Zoom Holder	1	
E7	QBN1560	Microphone Zoom Spring	1	
E8	QGKA0063	Microphone Ornament	1	
E9	QBHA0013	Microphone Net	1	
E10	QMA3266	Case Holder Angle	1	
E11	QXQA0028	Battery Terminal Assembly	1	
E12	EAS65P87SC	Speaker	1	
E13	XBAQ0005	Fuse	1	
E14	QBGA0035	Fuse Holder	1	
		CABINET PARTS		
G1	QYMA0062K	Main Case Assembly	1	

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks
G1-1	QKFA2001H	Cassette Lid	1	
G1-2	QBN7004	Cassette Lid Spring	1	
G1-3	QBP1377	Lid Holding Spring	2	
G1-4	XTN26+6B	Tapping Screw ⊕2.6×6	2	
G2	QYMA0065K	Bottom Case Assembly	1	
G3	QYFA0003	Battery Case Assembly	1	
G4	QYH0076	Hand Strap	1	
G5	QGSA0031	Main Name Plate	1	
G6	XSS2+8BV	Screw ⊕2×8 (Black)	5	
G7	XSS2+20BV	Screw ⊕2×20 (Black)	1	
G8	XTN26+20BFV	Tapping Screw ⊕2.6×20 (Black)	1	
		PACKINGS		
P1	QPNA0064	Inside Carton	1	
P2	QPAA0016	Cushion	1	
P3	XZB18X30A05	Poly Bag	1	
		ACCESSORIES		
		For United Kingdom		
A1	XEH15A1B	Earphone	1	
A2	RP010A	Radio Cord-M	1	
A3	QFKA0026	Carrying Bag	1	
A4	QQT2171	Instruction Book	1	
		For Scandinavian Countories		
A1	XEH15A1B	Earphone	1	
A2	RP052A	Radio Cord-E	1	
A3	QFKA0026	Carrying Bag	1	
A4	QQT2171	Instruction Book	1	
		For Middle Europian Countories		
A1	XEH15A1B	Earphone	1	
A2	RP052A	Radio Cord-E	1	
A3	RP667XE	AC Adaptor	1	

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Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks
A4	QFKA0026	Carrying Bag	1	
A5	QQT2212	Instruction Book	1	
		For Other Countories Except North America		
A1	XEH15A1B	Earphone	1	
A2	RP010A	Radio Cord-M	1	
A3	QFTC07L003NZ	Cassette Tape	1	
A4	QFKA0026	Carrying Bag	1	
A5	QQT2171	Instruction Book	1	

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